

## **ABSTRACT OF THE DISCLOSURE**

The present invention is directed to an interference canceller for a DS-CDMA communication system and a radio communication device that performs multi-rate transmission and eliminates interference of high-rate channels by a simplified structure. In a DS-CDMA communication system that performs a multi-rate transmission including at least low-rate channels and high-rate channels, there is provided an interference canceller that includes an array antenna interference replicating unit. The interference replicating unit is used in high-rate channels that receive signals received via array antenna elements and creates interference replicas of the high-rate channels. The system also includes an adder 6, which subtracts the interference replicas from the received signal via the array antenna elements. Further a resultant interference-eliminated signal is applied to receivers for the low-rate and high-rate channels.

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